

AMENDMENT

In the Claims:

Please cancel claims 5 and 48, and amend claims 1, 44-47, 49-53, 59, 64, 66, 68-72, 82-85, and 88 to read as follows:

1. (currently amended) A body-insertable apparatus comprising:
- a substrate;
 - an excitation source capable of generating radiation;
 - at least one probe being attached to said substrate and disposed in a path of said radiation, said probe situated to contact an analyte;
 - a detector for detecting optical properties of said probe, said detector also for converting optical signals representative of the detected optical properties to electrical signals;
 - and a housing adapted for reaching an area of interest within a body, wherein said substrate, said excitation source, said probe, and said detector are disposed in said housing.
2. (previously amended) The apparatus of claim 1 wherein said probe binds to an oligonucleotide.
3. (previously amended) The apparatus of claim 1 wherein said probe binds to a protein.
4. (original) The apparatus of claim 1 wherein said probe is fluorescently labeled.
5. (canceled).
6. (previously amended) The apparatus of claim 1 wherein said probe comprises an array of sub-probes.
7. (previously amended) The apparatus of claim 6 wherein said array comprises a readable polydeoxynucleotide array.

8. (previously amended) The apparatus of claim 6 wherein said array is disposed in a plurality of chambers within a frame.
9. (original) The apparatus of claim 8 wherein said frame comprises a molded material.
10. (original) The apparatus of claim 8 wherein said frame comprises a foraminous material.
11. (previously amended) The apparatus of claim 1 further comprising optics that affects said path of radiation.
12. (previously amended) The apparatus of claim 11 wherein said optics comprises a mirror.
13. (previously amended) The apparatus of claim 12 wherein said mirror is adjustable.
14. (previously amended) The apparatus of claim 1 wherein said body-insertable apparatus is electrically connected to a processing unit.
15. (previously amended) The apparatus of claim 1 wherein said body-insertable apparatus is electrically connected to an amplifier.
16. (previously amended) The apparatus of claim 1 wherein said body-insertable apparatus is electrically connected to a display.
17. (original) The apparatus of claim 7 wherein said array is positioned adjacent to said detector.
18. (original) The apparatus of claim 17 wherein said detector comprises a spectrometer module.
19. (original) The apparatus of claim 18 wherein said spectrometer module is encapsulated in an at least partly transparent housing.
20. (original) The apparatus of claim 1 wherein said excitation source comprises a light-emitting diode light source.

21. (original) The apparatus of claim 1 wherein said excitation source provides excitation energy wavelengths in a range from about 1100 nm to about 250 nm.
22. (original) The apparatus of claim 1 wherein said detector comprises a photodiode responsive to light emitted by said probe.
23. (original) The apparatus of claim 1 wherein said detector comprises a light wavelength detection system.
24. (original) The apparatus of claim 23 wherein said light wavelength detection system comprises a bandpass filter.
25. (canceled).
26. (previously amended) The apparatus of claim 1 wherein said body-insertable apparatus comprises a catheter.
27. (previously amended) The apparatus of claim 1 wherein said body-insertable apparatus defines one or more lumens extending through the length of said body-insertable apparatus.
31. (previously amended) The apparatus of claim 27 wherein said lumen delivers a drug, a reagent or a device to or beyond the distal tip of said body-insertable apparatus.
29. (original) The apparatus of claim 27 wherein said lumen provides suction sufficient to draw an analyte into proximity with said excitation source, said probe and said detector such that said analyte can be analyzed.
30. (original) The apparatus of claim 27 wherein said lumen comprises an infusion lumen.
31. (previously amended) The apparatus of claim 1 wherein said detector detects light emission at multiple wavelengths.

32. (previously amended) The apparatus of claim 31 wherein said detector comprises a photodiode.

33-43. (canceled)

44. (currently amended) A method of performing in vivo examination of a mammalian body, said method comprising:

(a) providing a device comprising a substrate, an excitation source, at least one probe, a detector and a housing, wherein said substrate, said excitation source, said probe and said detector are disposed in said housing, and said at least one probe is attached to said substrate;

(b) inserting said device into said mammalian body until said probe contacts an analyte in an area of interest;

(c) generating radiation from said excitation source such that said probe is in a path of said radiation;

(d) detecting an optical signal representative of an optical property of said probe through said detector; and

(e) converting said optical signal to an electrical signal using said detector.

45. (currently amended) The method of claim 44 ~~wherein comprising contacting said probe with said analyte comprises an oligonucleotide~~.

46. (currently amended) The method of claim 44 ~~wherein comprising contacting said probe with said analyte comprises a protein~~.

47. (currently amended) The method of claim 44 ~~wherein comprising providing at least one said probe that is fluorescently labeled~~.

48. (canceled).

49. (currently amended) The method of claim 44 ~~wherein comprising providing~~ said probe ~~comprises with~~ an array of sub-probes.
50. (currently amended) The method of claim 49 further comprising providing ~~wherein~~-said array ~~comprises with~~ a readable polydeoxynucleotide array.
51. (currently amended) The method of claim 49 further comprising disposing ~~wherein~~-said array ~~is disposed~~ in a plurality of chambers within a frame.
52. (currently amended) The method of claim 51 further comprising providing ~~wherein~~-said frame ~~comprises at least partly in~~ a molded material.
53. (currently amended) The method of claim 51 further comprising providing ~~wherein~~-said frame ~~comprises at least partly in~~ a foraminous material.
54. (previously added) The method of claim 44 further comprising using optics to affect said path of radiation.
55. (previously added) The method of claim 54 wherein said step of using optics comprises adjusting a mirror.
56. (previously added) The method of claim 44 further comprising transmitting and processing said electrical signal.
57. (previously added) The method of claim 44 further comprising amplifying said electrical signal.
58. (previously added) The method of claim 44 further comprising displaying said electrical signal.

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59. (currently amended) The method of claim ~~48~~ 44 further comprising mixing said probe with an ink to form a probe-filled ink and depositing said probe-filled ink upon said substrate.
60. (previously added) The method of claim 59 further comprising depositing a plurality of probe-filled inks upon said substrate in a specific ink pattern.
61. (previously added) The method of claim 60 further comprising protecting said ink pattern with a topcoat.
62. (previously added) The method of claim 61 wherein said topcoat comprises a dissolvable gel.
63. (previously added) The method of claim 61 wherein said topcoat comprises a polymer material dissolvable only upon application of a solvent.
64. (currently amended) The method of claim 44 comprising providing ~~wherein~~ said detector ~~comprises with~~ a spectrometer module.
65. (previously added) The method of claim 44 further comprising encapsulating said spectrometer module in an at least partly transparent housing.
66. (currently amended) The method of claim 44 comprising providing ~~wherein~~ said excitation source ~~comprises with~~ a light-emitting diode.
67. (previously added) The method of claim 44 wherein step (c) comprises generating radiation of wavelengths in a range from about 1100 nm to about 250 nm.
68. (currently amended) The method of claim 44 comprising providing ~~wherein~~ said detector ~~comprises with~~ a photodiode responsive to said optical signal from said probe.

69. (currently amended) The method of claim 44 comprising providing wherein-said detector ~~comprises-with~~ a light wavelength detection system.
70. (currently amended) The method of claim 69 further comprising providing wherein-said light wavelength detection system ~~comprises-with~~ a bandpass filter.
71. (currently amended) The method of claim 44 comprising providing wherein-said device ~~comprises-with~~ a catheter.
72. (currently amended) The method of claim 44 ~~wherein-comprising providing~~ said device defines-with at least one lumen extending through the length of said device.
73. (previously added) The method of claim 72 further comprising delivering a drug, a reagent or a device through said lumen to or beyond a distal tip of said device to affect said area of interest.
74. (previously added) The method of claim 72 further comprising using said lumen to provide suction such that said analyte is drawn into contact with said probe.
75. (previously added) The method of claim 44 further comprising introducing to said area of interest a lysing system to facilitate contact between said analyte and said probe.
76. (previously added) The method of claim 75 further comprising using ultrasonic energy to rupture a cell membrane at said area of interest.
77. (previously added) The method of claim 75 further comprising using a pressurization and evacuation system to rupture a cell membrane at said area of interest.
78. (previously added) The method of claim 75 further comprising using a mechanical force to rupture a cell membrane at said area of interest.
79. (previously added) The method of claim 78 further comprising using a lysing head driven by a driveshaft to rupture said cell membrane.

80. (previously added) The method of claim 44 further comprising implanting said device in said mammalian body.
81. (previously added) The method of claim 44 further comprising anchoring said device in said area of interest through an anchor.
82. (currently amended) The method of claim 81 ~~wherein further comprising providing~~ said anchor ~~comprises with~~ a therapeutic tip for administering a therapeutic agent.
83. (currently amended) The method of claim 82 ~~wherein further comprising separating~~ said therapeutic tip ~~is separable from the rest of said device and leaving such that said~~ therapeutic tip ~~remains within the area of interest after removal of said device.~~
84. (currently amended) The method of claim 82 further comprising retrieving ~~wherein said~~ therapeutic tip ~~is retrievable.~~
85. (currently amended) The method of claim 84 further comprising retrieving ~~wherein said~~ therapeutic tip ~~is retrievable through a tether attached to said therapeutic tip.~~
86. (previously added) The method of claim 82 further comprising controlling a function of said therapeutic tip from outside said body by transmitting an electrical signal through a tether attached to said therapeutic tip.
87. (previously added) The method of claim 44 further comprising using a carrying device to deliver said device to the area of interest.
88. (currently amended) The method of claim 87 further comprising selecting ~~wherein said~~ carrying device ~~is selected from the group consisting of a hollow needle, a guide wire, a balloon catheter, an ultrasound catheter, an introducer sheath, and a balloon angioplasty catheter.~~